No. 638,523. Patented Dec. 5, 1899.

O. W. SCHAUM.

LOOM.

(Application filed Feb. 9, 1899.)

(No Model.)

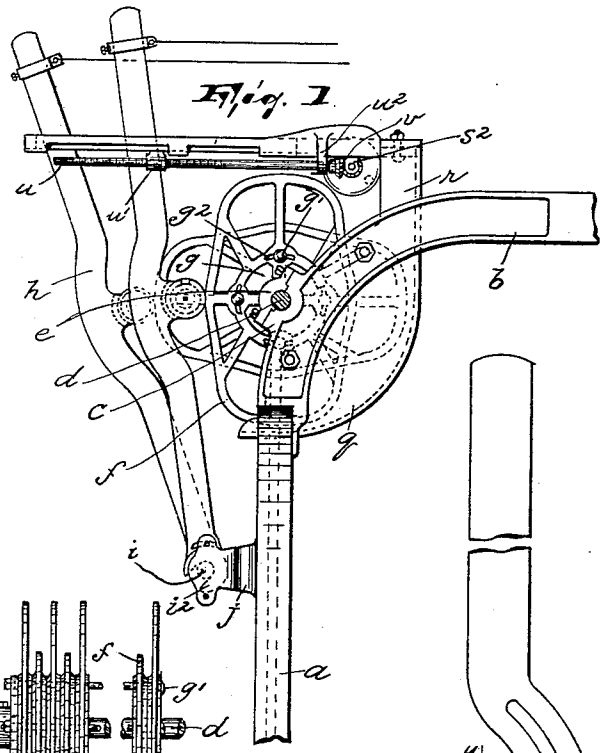

Fig. 1.

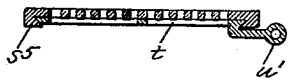

Fig. 7.

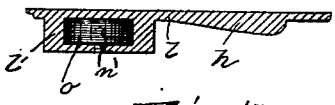

Fig. 4.

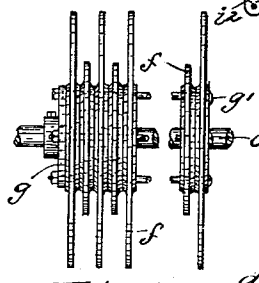

Fig. 8.

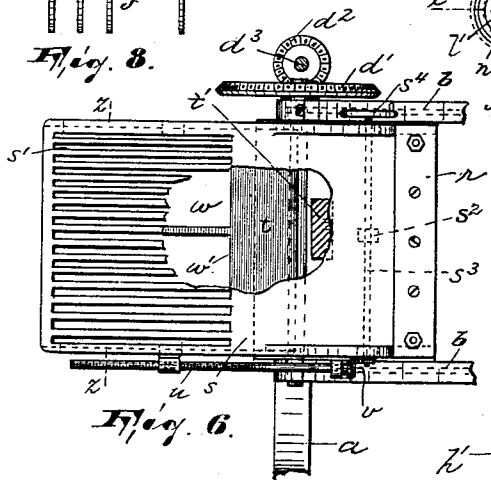

Fig. 6.

Fig. 3.

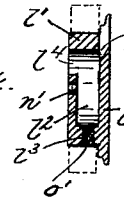

Fig. 5.

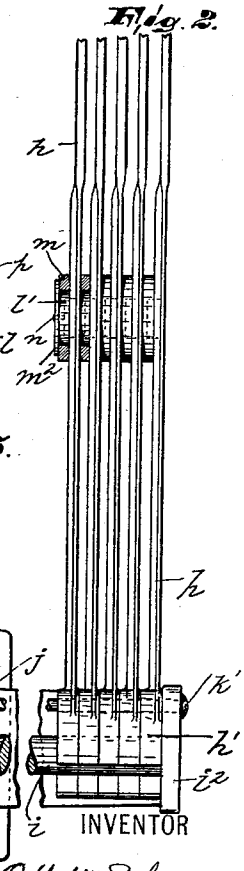

Fig. 2.

WITNESSES:

Wm. D. Bell.

Robert J. Pollitt

Otto W. Schaum,

INVENTOR

BY

Gartner & Steward

ATTORNEYS

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

OTTO W. SCHAUM, OF PHILADELPHIA, PENNSYLVANIA.

LOOM.

SPECIFICATION forming part of Letters Patent No. 638,523, dated December 5, 1899.

Application filed February 9, 1899. Serial No. 705,127. (No model.)

To all whom it may concern:

Be it known that I, OTTO W. SCHAUM, a citizen of the United States, residing in Philadelphia, in the county of Philadelphia, in the State of Pennsylvania, have invented certain new and useful Improvements in Looms; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

This invention relates to looms; and it consists in an improvement upon that portion of a loom constituting the harness-operating mechanism.

The objects of the invention are, first, to construct a loom with the harness-operating mechanism arranged on the frame thereof in an elevated position on instead of at the base of one of the ends of said frame; second, to arrange and construct the harness-levers relatively to each other and to their actuating-cams so as to effect a minimum of friction between moving parts without sacrificing simplicity of construction and durability and so as to provide self-lubricating means between frictionally-contacting parts of said harness-levers; third, to arrange said actuating-cams for the harness-levers so as to be relatively adjustable, and, fourth, to provide a simple and effective device for leveling the harness-levers as occasion requires.

In view of the above-stated objects the invention consists in a loom provided with my improved harness-operating mechanism and in the combination and arrangement of the various parts of said harness-operating mechanism, substantially as will be hereinafter pointed out and finally embodied in the clauses of the claim.

The invention is fully illustrated in the accompanying drawings, wherein—

Figure 1 is a view in front elevation of a portion of the end of a loom-frame with my improved harness-operating mechanism mounted thereon. Fig. 2 is a front view of some of the harness-levers, certain detail portions being shown in section. Fig. 3 is a view in side elevation of one of said harness-levers. Figs. 4 and 5 are transverse and longitudinal sectional views, the latter being seen in the direction of the arrow, taken on the lines x x and y y, respectively, in Fig. 3. Fig. 6 is a top plan view of a certain leveling device shown in Fig. 1. Fig. 7 is a transverse sectional view on the line z z of Fig. 6, and Fig. 8 is a front view of some of the actuating-cams.

In said drawings, a designates one of the end frames of the loom, and b b designate a pair of parallel top rails, which are arched at their ends and which surmount and span the end frames. The arched portion of each top rail is formed with a bearing c, in which is journaled a horizontal shaft d, which is held in position by a bridge-piece e, forming a part of said bearings, and bolted in place. One end of the shaft d carries a bevel-gear d', which intermeshes with another bevel-gear d^2 upon the upper end of a vertical shaft d^3, which is operatively connected in any suitable manner with the driving mechanism of the loom, and by this means said shaft d is rotated.

The shaft d carries a set of cams f, which I have shown in the drawings as being substantially elliptical, but which may obviously be of any other form, as necessity requires. Said shaft d also carries a face-plate g, which is fixed thereon near one of its ends and to which the various cams are secured by bolts g'. Said bolts g' penetrate concentric slots g^2 in the cams, and by this arrangement said cams are made relatively adjustable about the shaft d.

h designates the harness-levers. Each of said harness-levers is formed at its lower end with an enlargement h', having an obliquely-set notch or recess h^2, which receives a horizontal supporting-rod i for said harness-levers, said supporting-rod constituting an integral connection between the two arms i' i^2 of a bracket j, having a supporting-plate j', whereby it is bolted or otherwise secured to the end frame a of the loom. Slightly above the recess h^2 each harness-lever is formed with an elongated arc-shaped slot k, which when the several harness-levers are assembled and mounted in position upon the bracket j

is penetrated by a removable rod k', projecting through and connecting the arms i' i^2 of said bracket.

The forwardly-extending arm l of each harness-lever is formed upon one of its faces with an integral circular projection l', said projection being formed with a cavity l^2, which has a duct l^3 at its bottom and an opening l^4 provided in the outer wall of said projection. The opposite face of the arm l of each harness-lever is perfectly flat or plane.

m designates an annular roller which surrounds and is journaled upon each of the projections l' and which has substantially the thickness of said projection. Said roller m constitutes an antifriction element which is adapted to bear against the cam corresponding to the particular harness-lever upon which it is mounted.

In view of the foregoing it will be seen that since the corresponding faces of the arms l of the harness-levers are provided with the antifriction bearing devices just described and since their opposite faces are perfectly plane the annular roller of any particular harness-lever, except the extreme left-hand one in Fig. 2, is maintained in position by the adjoining harness-lever. Of course it is to be presumed that the normal movements of the harness-levers are not sufficient so that the rollers are ever entirely uncovered. The roller of the extreme left-hand harness-lever in Fig. 2 is held in place by a disk m^2, which approximates it in diameter and which is secured to the face of the projection l' by a screw n. In order that the disk m^2 may be secured to any projection indiscriminately, each of the projections may be provided with a screw-hole n' for receiving the screw n, whereby the disk is secured in place.

The cavity l^2, which is formed in each projection, is provided as a receptacle for the lubricant, and for this purpose it is adapted to contain a body o of felt or other similar material which will readily become saturated with the oil or other lubricant used and which may be introduced through the opening l^4. The said cavity is adapted to feed the lubricant to the bearing parts through the duct l^3, which latter may be provided with a plug o', also preferably of felt. The oil is supplied to the cavity through an orifice p, formed in the arm and communicating with the upper rear portion of said cavity.

q designates a fender which is bolted between and to the top rails b and which is adapted to prevent any particles of oil, &c., from being thrown by the cams onto the work. The upper portion r of said fender projects some distance above the cams and supports my improved leveling device. Said leveling device may be described as follows: A supporting-plate s is bolted at its rear end to the top of the upwardly-projecting portion r of the fender q, and it is provided with a series of longitudinal slots s' for the reception of the various harness-levers. Said plate is formed on its under face and near its rear end with lugs s^2, which provide bearings for a horizontal shaft s^3, having a hand-wheel s^4 at one end.

t designates another plate, whose side edges are beveled and engage projections s^5, formed along the side edges of the top or supporting plate, said projections having grooves which are shaped correspondingly to the edges of the plate, so that in cross-section the two plates are connected by a dovetailed arrangement.

u designates a threaded shaft which is tapped into a laterally-projecting lug u', formed on the movable plate, and which penetrates still another lug u^2, projecting from the side of the top or supporting plate. The adjoining ends of the two shafts s and u are connected by bevel-gearing v. Thus when the hand-wheel s^4 is manipulated the motion of the shaft s^3 is transferred on to the threaded shaft u, and consequently to the plate t.

The plate t has openings w in it which admit the harness-levers, and when it is moved forward or outwardly the edges w' of said openings will engage the various harness-levers which are being drawn upon by the harness and bring them all into the same plane and ultimately all out of engagement with the cams.

t' designates a stop formed upon the under side of the top or supporting plate and adapted to limit the inward movement of the plate t.

It is believed that the operation of the various parts of my improved harness-operating mechanism will be fully understood without description further than that which has been hereinbefore set forth.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination of a plurality of suitably-fulcrumed levers, a roller between the adjoining faces of each pair of levers, and a projection upon one of said adjoining lever-faces providing a bearing for said roller, said projection including a lubricant-cavity having supply and feed orifices, substantially as described.

2. The combination of a plurality of suitably-fulcrumed levers, a roller between the adjoining faces of each pair of levers, a projection upon one of said adjoining lever-faces providing a bearing for said roller, said projection including a lubricant-cavity having supply and feed orifices, and means, engaging the rollers, for actuating said levers, substantially as described.

3. In a harness-operating mechanism for looms, the combination, with a series of cams having suitable driving means, of a series of harness-levers, a projection formed upon one face of each harness-lever and contacting with the adjacent face of the adjoining harness-lever, and a roller journaled on said projection, said roller bearing against one of the cams, substantially as described.

4. In a harness-operating mechanism for looms, the combination, with a series of relatively adjustable cams having suitable driving means, of a series of harness-levers, a projection formed upon one face of each harness-lever and contacting with the adjacent face of the adjoining harness-lever, and a roller journaled on said projection, said roller bearing against one of the cams, substantially as described.

5. In a loom, the combination, with the frame, of a harness-operating mechanism mounted upon the upper portion of said frame and consisting of a shaft journaled in said frame, a series of relatively adjustable cams mounted on said shaft, driving means for said shaft, a series of harness-levers, a projection formed upon one face of each harness-lever and contacting with the adjacent face of the adjoining harness-lever, and a roller journaled on said projection, said roller bearing against one of the cams, substantially as described.

6. In a loom, the combination, with the frame, of a harness-operating mechanism mounted upon the upper portion of said frame and comprising revoluble cams and harness-levers actuated by said cams, a fender for said cams supported by the frame, a leveling device for said harness-levers supported by said fender, and a suitably-arranged revoluble threaded shaft operatively connected to the movable portion of said leveling device, substantially as described.

7. In a harness-operating mechanism including fulcrumed harness-levers, a suitably-supported plate having slots for said levers, another plate guided for rectilineal movement in said first-named plate and having an opening for said levers, and a revoluble threaded shaft journaled in the one and engaging the other of said plates, substantially as described.

8. In a harness-operating mechanism, including fulcrumed harness-levers, a suitably-supported plate, another plate having a sliding connection with said first-named plate, and adapted to engage said harness-levers, a threaded shaft engaging the sliding plate, an operating-shaft, and bevel-gearing connecting said shafts, substantially as described.

In testimony that I claim the foregoing I have hereunto set my hand this 31st day of January, 1899.

OTTO W. SCHAUM.

Witnesses:
MAX S. HERZBERG,
ALFRED ROSENSTEIN.